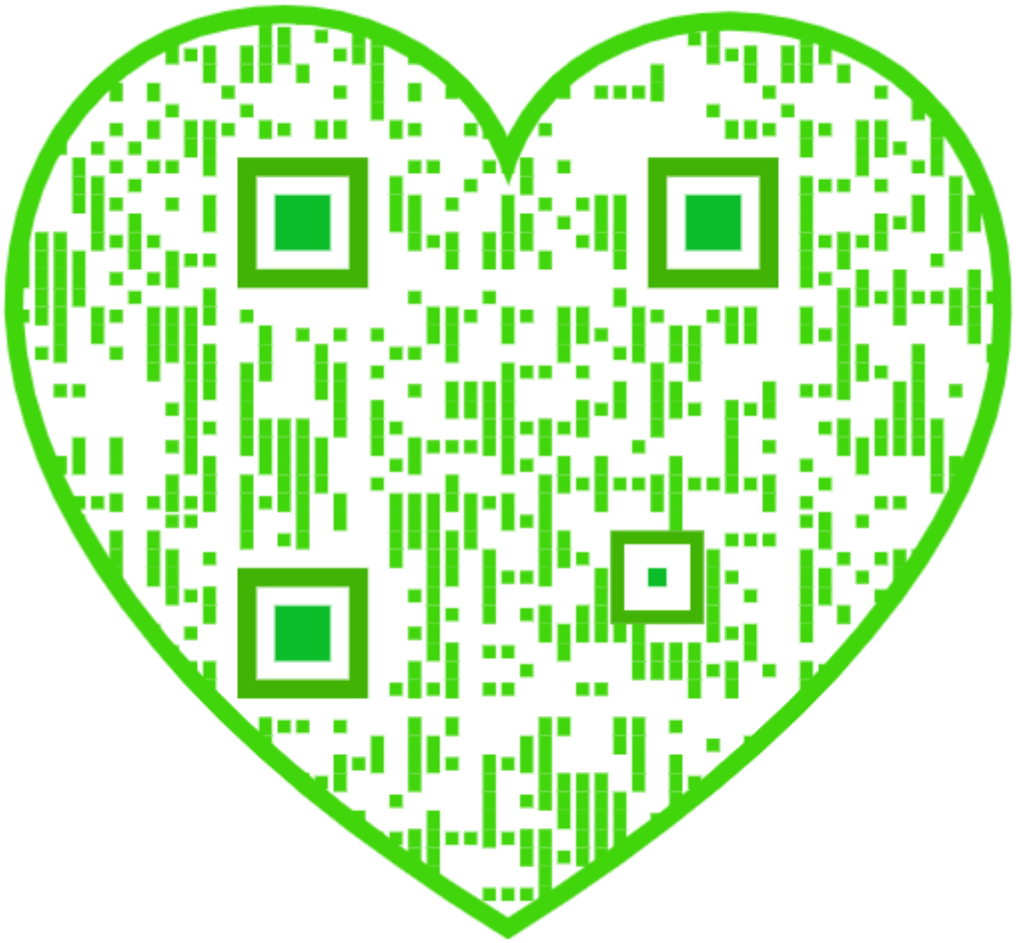

BOAT SAILING.

HINTS

ON

BOAT SAILING

AND RACING

BY

CAPTAIN C. C. P. FITZ-GERALD, R.N.

PORTSMOUTH :
GRIFFIN & Co., 2, THE HARD,
(Publishers by Appointment to H.R.H. the Duke of Edinburgh).
LONDON AGENTS : SIMPKIN, MARSHALL & Co

1882.

268. c. 665.

DEDICATION.

DEAR SIR GEOFFREY HORNBY,

As you have always taken such an interest in boat sailing, and done so much for its encouragement, I feel certain that you will allow me to dedicate this little book to you.

You will observe that it is not, and does not profess to be, a treatise on the subject; young people will not read treatises, but I thought that perhaps they might be induced to read a few loose and disconnected remarks, provided they were not served out too thick, or too dry.

Life is short, and brains are limited, and if every spare moment of time, and every effort of memory, and sagacity, have to be given by our midshipmen to the study of theory, and mathematics, I very much fear "practice" and "seamanship" must be neglected; and that our future admirals, instead of being first-rate seamen, will be first-rate mathematicians, which will scarcely enable them to conduct a fleet, except on paper.

In my notices of foreign boats and rigs, I have not, as you will see, mentioned a tenth part of the great variety of rigs which are to be met with in different parts of the world, I have just picked out a few which seem to present some special features of peculiarity and interest, from which the rising generation might draw their own inferences, and form their own conclusions: and I would try to impress upon them, that it is as true of seamanship, as of all the other affairs of life that an ounce of practice is worth a pound of theory.

To Admiral
Sir Geoffrey Phipps Hornby, K.C.B.,
&c., &c.

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HINTS ON BOAT SAILING.

CHAPTER I.

GENERAL.

Boat sailing may be looked upon as the nursery for ship sailing, the same general principles apply in both cases, and although it is quite possible that an accomplished boat sailor may know nothing of ship sailing through not having had any opportunity of practicing it, still, it is certain that a good knowledge of boat sailing will be an excellent foundation for seamanship in all its branches. Even as children learn to ride on donkeys and ponies before they are allowed to mount full-sized horses, so our "sucking Nelsons" may lay for themselves a thoroughly sound foundation for the noble art of seamanship by paying close attention to the management of their boats under all circumstances of wind and weather, and if the few hints which I propose to throw out in this little book in any way assist them, I shall feel myself amply rewarded.

Seamanship may be described as an inexact science, it certainly cannot be reduced to formula, nor learnt out of a book, therefore, let no young son of the ocean think that he is going to learn boat sailing by reading this book, all I can do for him is to give him a few hints which may prove useful in combination with practice, and to try and impress upon him that the only way to learn it is to practice it with his eyes open, and to lose no opportunity of sailing in any style of craft that he can get hold of, from a punt to a ship's launch. Sailing in a boat which is being cleverly handled by an experienced helmsman will no doubt teach something, but it will not make a good helmsman, nor a good seaman, practice alone will do that.

It is the custom amongst yachtsmen and watermen to deride man-of-war boat sailing, and to laugh at our boats when they see them in difficulties, managed or probably mis-managed, by an inexperienced midshipman, a green coxswain, and an untrained boat's crew, trying to work their boat against wind and tide, with a dipping lug, and finally having to resort to their oars, or perhaps getting a tow from a friendly steam launch, if they have been lucky enough in the meantime to escape laying their boat thwart-hawse of some vessel at anchor, or getting her stove against some twirling buoy. Such exhibitions are no doubt legitimate sources of merriment for outsiders, particularly for yachtsmen, who not uncommonly try to ape the manners and customs of men-of-

war's men; but they can only be subjects of mortification and pain to all officers unto whom the honour and credit of their profession is dear.

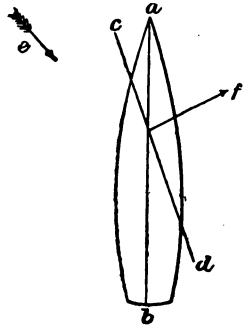
It is on the face of it obviously unfair to compare a man-of-war's boat to any yacht however small she may be, or even to a well-found wherry; but whereas any lubber can beat to windward in a ten ton racing cutter, it takes some skill to do so in a flat-bottomed ship's launch, without a false keel, or any ballast except a few barricoes, nevertheless it can be done by paying close attention to the setting of the sails, staying of the masts, trim of the boat, and watchful and attentive steering, and when really well done, is a very creditable performance.

It should always be remembered that man-of-war boats are not built exclusively for sailing, far from it, they are intended to fulfil a variety of purposes, they must be able to row fairly well, they must be good sea boats, they must be able to go into shallow water, to land on beaches, be strong enough to carry guns, gatlings, rockets, provisions, or a large number of men, and yet fairly light for hoisting up; and if they fulfil moderately all these conditions it is absurd to expect them to sail on equal terms with boats of their own size built exclusively for sailing.

Before entering into descriptions of the different classes of boats used in the navy, it may

be as well to make a few remarks upon the sailing of boats in general, as the same broad principles apply to all boats with all rigs, subject to some slight modifications, according to the size, build, and rig of the boat.

First of all let us consider the art of beating to windward; this in fact is nothing more nor less than making the wind blow the boat up against the wind, and this apparent impossibility is accomplished on the principle of the wedge, taking the line of least resistance. To put the matter into very plain and simple language, let "a" "b" be a boat sailing about six points from the wind, which is represented by the arrow "e," then "c" "d" is the boat's sail, which being pressed upon by the wind at a fairly efficient angle, the resultant of the force is at right angles to the plain of the sail, or in the direction "f,"



but the boat, in consequence of her shape, and of her keel, offers great resistance to being driven in the direction "f," but moves easily in the direction of the line of least resistance, or in other words right ahead; and practically it is found that a good shaped boat with a proper keel will go several feet ahead for every inch that she goes to leeward, or in the direction "f."

In the figure I have represented the sail as being a flat surface, which in point of fact it never really is, but it should always be remembered that the nearer a sail can be made to approach to a flat surface the better the boat will work to windward. The most efficient angle with the keel at which the sail should be trimmed is a matter to be learnt by experience and practice, it not only varies in different boats, but it also varies considerably in the same boat under different circumstances of wind and sea, so that it would be impossible to lay down any fixed rule for it, with the exception of the general rule, that in smooth water sheets may be hauled flatter aft than in rough water, but the *flatness* of the sail itself admits of no variation under any circumstances, or on any point of sailing. Our forefathers used to consider that a certain amount of "belly" (as it is called) was desirable, but it has since been proved, first by the famous "*America*" schooner in in 1851, and since admitted by all seamen, that a flat sail is best. This being the case, the first object should be to get sails when hoisted taut

up, and the sheets aft to approach as nearly as possible to a flat surface, especially avoiding a bag in the after leech. The success of a sail, that is to say its close approach to a flat surface, depends primarily upon the sailmakers who cut it, sewed it, and roped it, but it also depends in no small degree upon the person who bends and sets it, and although it is impossible to turn a badly made sail into a good one, it is very easy to spoil a well made sail by injudicious treatment, more especially when the sail is new. Perhaps the easiest way to spoil a new sail is to haul it very taut out on the yard or gaff, then haul the sheet or out-haul very taut out, bowse the tack taut down, and then take it out in a shower of rain and get it well wet without slacking anything, this treatment will probably spoil it beyond all cure, it will stretch it unfairly and unequally, pulling it out of the shape that it was originally intended to be, it will certainly produce either a shaking leech, a slack or hollow foot, or an ugly bag in some part of the sail which it will be impossible to get rid of, and the sail will be spoilt. This being the way to spoil a new sail, the opposite treatment will obviously be the way to avoid spoiling it; thus, do *not* haul it taut out on the yard or gaff, but let it stretch gradually, and haul out the slack as it stretches; if a gaff sail on a boom, on no account haul it taut out on the boom when new, but be content to sail about with it rather baggy at first, allowing it to stretch gradually in all directions, also avoid bowsing the tack down in a new sail.

It is a common practice amongst yachtsmen when they get a new sail, to moor their vessel broadside on to the wind and set the sail, thus allowing it to stretch gradually and equally from the pressure of the wind; when this can be done it is no doubt preferable to sailing about for a week or a fortnight with a baggy sail. A jib is not so easily spoilt as a gaff sail, but this may be done by hoisting it very taut up, and then bowsing the sheet very flat aft in a calm.

I have already remarked that the art of boat sailing is to make a boat go to windward, and although boats are required to sail "off the wind" also, it will be found that very little skill is required to make them do so, as the tendency of all floating objects, including haystacks, is to blow to leeward with more or less velocity, and although I shall probably have something to say on the management of boats "off the wind," I propose first to consider the art of beating to windward.

The first and most important thing to be considered is "*Trim*," for although you may have the best made sail ever turned out by the famous Lapthorn, the best shaped boat ever built by the renowned Waterman, and the smartest boat's crew that ever wet their jackets and lost their caps overboard, you will not be able to make her beat to windward properly if she is out of trim. It is not always an easy matter to find a boat's

best trim, several trials will sometimes have to be made before it is arrived at, but as a general rule most boats sail best trimmed a little by the stern, some sail best trimmed a great deal by the stern, and occasionally boats are to be met with which will not do their best unless they are down by the head, but this last is unusual, and must result from something peculiar in the shape of the boat, and in the position of the masts and sails.

In man-of-war boats where the principal ballast consists of the crew, it ought to be a very easy matter to keep the boat always in trim, as men are so easily moved about from one part of the boat to the other, thus admitting of repeated trials until the best trim is found; but yet how little attention is generally paid by midshipmen to the trim of their boats, and how often we see them sailing about with two or three men crammed right in the bows, making the boat plunge heavily, and carry so much weather helm that the coxswain or mid, whichever happens to be steering, cannot keep the boat from flying up in the wind; then perhaps a happy thought strikes "young hopeful," and he eases off the mizen-sheet and the mizen flutters gaily in the breeze; then perhaps he wants to tack, and puts his helm down, but through the mizen-sheet being eased off there is nothing to bring her to the wind, and after hanging nearly head to wind for some time, and making a long "stern board" she falls off again on the same tack, thus "missing

stays," and young "shiver the mizen" when he eventually gets on board his ship, reports to the first lieutenant that his boat is an unmanageable brute and will not tack under the most favourable circumstances; whereas had his boat been in trim, and his mizen sheet aft, and had he *sailed* her round gradually with small helm at first, instead of jamming his tiller "hard over" at once, he would probably have found that she was very handy, and went ronnd like a teetotum. As a rule the best way to find a boat's trim, is to get her "on a wind" with the sails well set, and the sheets aft, *but not too flat*, and then trim the boat with the crew, by moving them about, until the boat carries just sufficient weather helm to ensure that she will come up in the wind (though not too quickly) directly the tiller is let go; but it should be remembered that in trimming a boat, if it is found necessary to bring her a little more down by the stern in consequence of her carrying too "taut" a helm, or more down by the head, in consequence of her carrying too "slack" a helm, the proper way to do it, is not to move one man right forward or right aft, but to move the whole body of the crew a little forward, or a little aft; for it is an invariable rule in sailing, and applies equally to boats, yachts, or ships, that the principal weights should be concentrated as much as possible amidships, and kept out of the ends, particularly out of the bows, where heavy weights always make a vessel plunge heavily, thus stopping her weigh, and at the same time making her very wet.

It must be remembered that although a boat may be trimmed to perfection for sailing in smooth water, it will often be found necessary to alter her trim if she is taken out into rough water, as boats of shallow draught when pitching, even in a moderate sea, lift a considerable portion of the fore-part of their keels out of the water, but this does not happen to the same extent with the after-part of the keel, so that the balance which previously existed is destroyed, and it will be found necessary to move some weight a little further forward, as otherwise the boats bow will "fall off," she will carry lee helm, will probably "miss stays" and become generally unmanageable; but this may easily be avoided, by judiciously moving the crew a little further forward, and thus restoring the balance.

When loading a boat with provisions or other heavy stores, care must be taken (if it is intended to sail) to put the principal weights amidships, for if either the bow or the stern are brought too low down in the water, it will be found impossible to trim her, even by putting the whole of the crew at the opposite end of the boat, and she will probably be quite unmanageable; but if she is properly stowed, and not too deeply laden, she will sail nearly as well as she did in her ordinary trim, No boat should attempt to sail when loaded with water in bulk, nor even in a canvas tank, unless the tank is divided into two, in a *fore and aft* direction, in which case sail may be carried with caution.

So far I have considered the trim of the boat with regard principally to the disposition of the crew as the ballast, but man-of-war boats also carry a small amount of water ballast, in barricoes, this should as a rule be stowed nearly amidships, but if anything rather abaft than before the centre of the boat, unless it is intended to carry a large number of stern sheet passengers, in which case it should be stowed further forward.

"Sinking ballast" may be carried in life boats without danger so long as the amount does not exceed the weight which the boat is calculated to support when full of water, but sinking ballast should never be carried in ordinary open boats, as in case of a capsize the chance of saving life will be considerably decreased through the boat sinking, and if the water is deep the boat herself will be lost also.

CHAPTER II.

STEERING.

Having now got our boat into trim, the next thing is to steer her properly; the art of steering a boat by the wind is only to be acquired by practice, but the first requisite is attention, *strict attention*; it is a game of skill as much as cricket, billiards, lawn tennis, or any other game of that description, and hand and eye must work together.

A well-trimmed boat sailing on a wind is as sensitive in answer to the hand that steers her as a light mouthed horse, and requires as constant watching and humouring.

As a matter of fact the wind is never perfectly steady either in force or direction, every puff comes a little different, and must be watched and humoured by a slight movement of the hand that holds the helm; every little wave that strikes the bow produces its effect upon the boat, which must be taken into account.

After a time, and with practice and close attention, these things become a matter almost of instinct, and are done involuntary, like breathing, and a good helmsman can *feel* when his boat is

doing her best, but he can never afford to take his eye off the luff of the sail by which he is steering.

The trim of the sheets is also a matter which requires very close attention, a boat's sheets may always be hauled flatter aft in smooth water than in rough; the sheets of standing lugs, and gaff, and sprit sail, may be hauled quite flat aft in smooth water, but the sheet of a dipping lug should never be *quite* flat, it is a balanced sail and is susceptible of the most delicate trimming to all circumstances of wind and weather, it will enable a boat to hold a better wind than any other sail that has ever been invented, and it is also a most powerful sail "off the wind," it requires more men to work it than any other sail, but for this reason it is specially suited to man-of-war boats, where there are always plenty of men; it is quicker got up or down than any other rig, and has less gear about it, but it requires *good handling*, if it is well handled a dipping lug is the most beautiful and effective rig that can be put into a boat, but if badly handled it is one of the worst.

In sailing by the wind the great object is to make the boat go as fast as possible through the water in a direction as near to the wind as possible; now if the sheets are hauled very flat aft and the boat sailed close to the wind ("jammed" as it is called) she may "look" higher than

another boat which is being properly sailed, but she will go slower through the water, and make a lot of leeway; and if on the other hand the sheets are not flat enough aft, and the boat sailed too much "off," she will go through the water faster, but she will not go sufficiently to windward, the art therefore consists in striking a happy medium between these two extremes, watching every puff of wind, and taking every opportunity of luffing up to windward, at the same time keeping the boat "going" and never allowing her to lose her weigh through jamming her in the wind and shaking the sails.

When a boat is properly sailed "by the wind," the luff of one of the sails should be kept just "touching" as the term is, but never shaking, thus sailed, and with the sheets and the boat herself properly trimmed, she will be doing her best to windward, or to speak more accurately, she will be doing "well," for the art of sailing by the wind is one which admits of the display of so much skill and judgment, that it is scarcely possible to imagine a boat or ship so well steered but that she might be sailed still better, and thus the most clever and experienced helmsman will occasionally meet his match, but this ought to make the young aspirant for naval honours all the more anxious and determined to learn an art which is the groundwork of seamanship, and which affords so fine a field for the development of skill, judgment, and perseverance.

CHAPTER III.

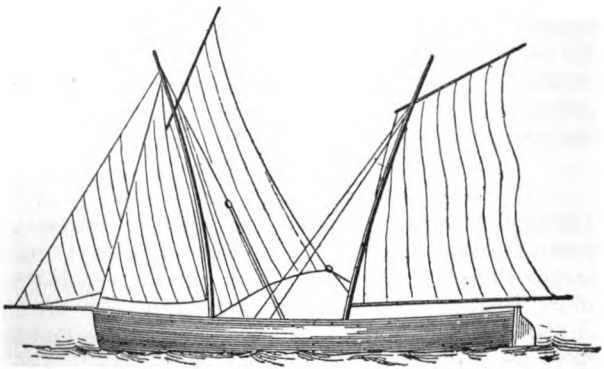
MEN-OF-WAR BOATS.

In considering a few of the different classes and rigs of boats, I propose to commence with man-of-war boats, and then to notice one or two of the rigs to be met with in other countries, some of which are very interesting, and instructive, as being peculiarly adapted to the different harbours and seas in which they are used.

Launches and Pinnaces in the Navy are built on the diagonal plan, as it is called, with two thicknesses of plank running opposite ways, it is very strong but rather heavy, they are sometimes coppered, but generally they are left without any sheathing; it is a good plan to have them coppered for harbour ships, where they are often left in the water for several months together; but for sea-going ships they are better unsheathed, as they are much lighter.

The old fashioned rig for launches and pinnaces, was, two standing lugs and a staysail, and a jib on a bowsprit, the foresail was a good deal larger than the mainsail, which in fact was little more than a large mizen stepped at the after thwart; this was not a bad rig for a pinnace, and I have seen some boats sail well under it, but for the

larger launches the foremast was rather a heavy spar, so it gradually became the custom to make the foresail and mainsail about the same size and the masts the same height, and this was found to be more convenient for getting them up and down quickly; but this rig was peculiarly liable to an objection to which all rigs are more or less liable, and that was the great facility with which the sails could be *badly* set, in fact it was very rare to see them otherwise *than* badly set; this arose in a great measure from the difficulty of staying the masts properly: the headsails dragged the foremast over the bows and the mainmast having no permanent stay, was always about equally over the stern; so that the boat looked like a stand for two astronomical telescopes, one of which was pointed at the Great Bear, and the other at the Southern Cross.



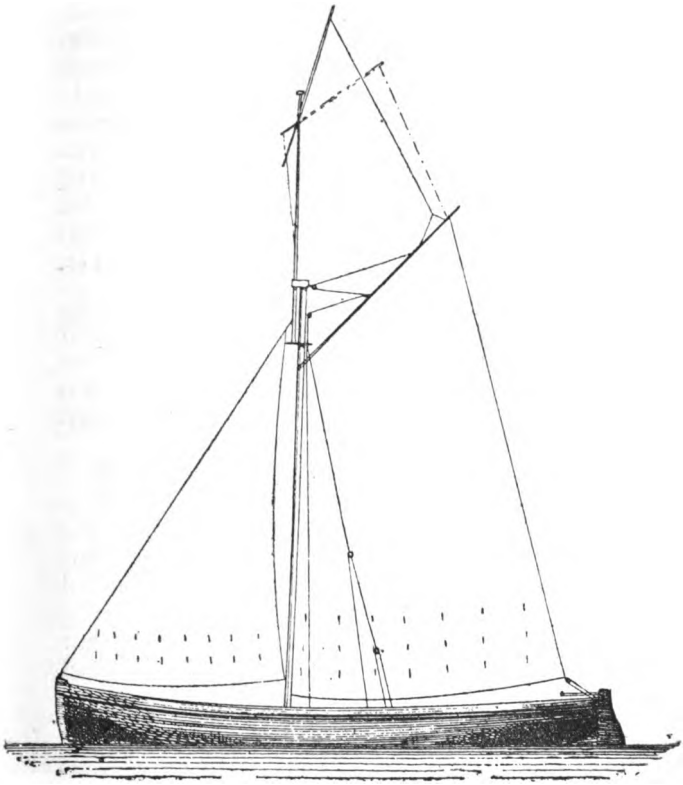
The result being that the mainsail was always baggy, and shaking, and the foresail was pulled out of its proper shape and did not set properly.

The cure for this, as far as the foresail is concerned, is to see the fore runners hauled "hand taut" before the head sails are hoisted, remembering also that the head sails in this rig take the place of a forestay, so that it would consequently be unwise to lower both head sails suddenly, if the fore sheet were flat aft, in anything of a breeze, as the jerk would most likely send the foremast over the stern. The complaint of the mainmast is more difficult to cure; the stays being shifting stays, in order that the lee one may be let go to clear the foresail; it is found in practice that the mainmast is never properly stayed, and the result is that the mainsail is never properly set, but always more or less in a bag and shaking; the only effectual cure for this, is to have a wire stay at a short peak, or in other words at a small angle with the mast, and secure it to a bolt clinched through the keel of the boat; the stay and bolt must both be strong, as from being at a "short peak" there is of course more strain than usual on them; it is necessary to have the stay at a short peak, for if it was carried too far forward, it would hamper the foresail in tacking.

The foregoing rig is being gradually displaced in the navy by the so called "de Horsey

rig," which is I think on the whole a better rig; it is nothing more than an ordinary gaff sail without a boom, and a foresail on a stay without a bowsprit, but the credit is no doubt due to Admiral de Horsey for having found out the best dimensions for these sails, and for bringing them into use in man-of-war boats; the foresail is often erroniously called a jib by some officers who ought to know better. The only objection to the de Horsey rig is, that it takes a little longer to get up or down, than the old rig, but this is more than counter-balanced by its increased efficiency when it is up.

The square headed gaff-topsails as supplied from the dockyards cannot be made to stand on a wind, but a sail cut with more peak to it as shown in the sketch can be made to set well on all points of sailing, and is useful in light winds. One great advantage in this rig is that all the sails and gear are *inside* the boat, and no booms or bowsprit sticking out to get knocked away, so that it is a capital rig in which to practice the gentle game of "rammo," as the youngsters will not be able to break up their own sticks, whatever they may do with other people's, and unless they go too hard at it, a brush of paint will generally put everything to rights, but it is a loftier rig than the old rig, and most boats require a little more ballast to carry it properly, a few water casks are sufficient for all ordinary weather, and one or two extra for strong breezes, it is in



42 FOOT LAUNCH.

fact a capital "bad weather rig," it can be worked with a few hands, and the sails are easily reefed, as they are all inside the boat. When reefing, the boat should be kept sailing as near to the wind as possible, and "weigh" kept on her, as if she is allowed to fall off and get the wind abeam the sail will probably be dragged out of the men's hands, and they will be unable to reef it; it will rarely be necessary to reef when going before the wind, but when it is necessary the best way is to lower the sail down altogether, reef it, and re-set it.

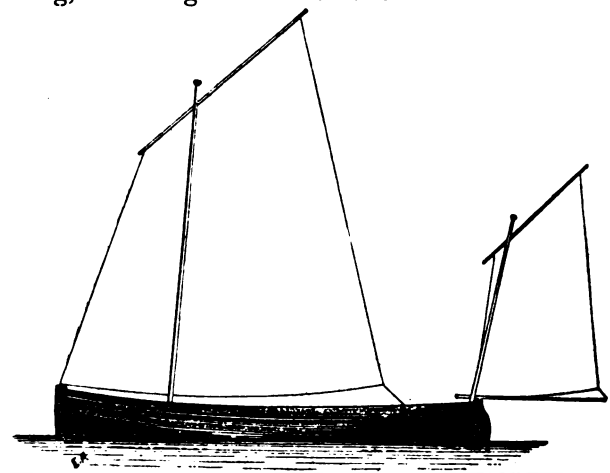
I have seen a spurious imitation of this rig, with a boom on the mainsail, and heard it called "de Horsey rig," but I think that Admiral de Horsey would repudiate it, as I am sure he is too good a seaman to put a long boom into an open boat.

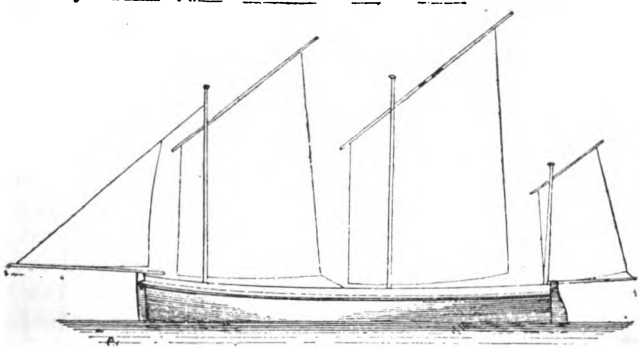
CUTTERS.

The dipping lug foresail and standing lug mizen of the service cutters is a splendid rig, but it requires good handling, when properly handled it is superior in most respects to every other rig for boats up to 30 feet in length, but after that size it would become too large to be handled conveniently.

I have always understood that it was introduced into the navy either by the present Admiral of the Fleet, Sir Thomas Symonds, or by his father, the famous designer of ships, which bore his name in the navy for many years, be that as

it may, it appears to me to combine more good qualities for man-of-war boats than any other rig, with, perhaps, the single exception of the French rig, which I give a sketch of :





here then are the two rigs side by side.

The advantages of the English rig are that it is quickly got up or down, there is very little gear about it, and there is no bowsprit, the absence of which is a great advantage in coming alongside a ship, but the foresail is a large sail, and being a dipping lug requires good handling, especially in tacking. It will be observed that the French foresail and mainsail are also dipping lugs, but the tacks of them are so close to the mast in proportion to the length of the yard, that the boat is quite under command with the sails "aback" or to windward of the mast, though of course she sails better with them to leeward, still it is a great advantage, especially in making short tacks, to be able to carry them on either side; another advantage in the French lugs is that from having so little of the sail before the mast they are much more easily dipped than the English sail; very little of the halyards has to be lowered, and the yard is swung round with great ease; the French sailors work them very smartly, they are generally excellent boatmen, and from being recruited from the fishing population they are accustomed to boats from their boyhood, and are much more at home in them than our own men.

The English rig will I think sail closer to the wind than the French rig, the fact of having the principal part of the canvas in one large sail, instead of dividing it into two sails of about equal size, ensures holding a better wind; thus cutter yachts always go to windward better than

schooners, but the schooners generally have the best of it with a beam wind, or "on a reach" as it is called. In order that a dipping lug should be at its best, it ought to have nothing *before* it, not even a small jib, for it is an *invariable* rule that the draught out of one sail will always affect the sail next abaft it, no matter how clear of each other they may appear to be; and this I look upon as one of the disadvantages of the French rig, the jib will affect the foresail, and the foresail will affect the mainsail, whereas in the English rig, the luff of the big dipping lug which is the principal sail in the boat, will cut clean into the wind, without anything to obstruct it or to cause a draught, and the mizen keeps the boat up to the wind.

The dipping lug and mizen is not an easy rig to "heave to" with, but it can be partially effected by easing off the fore sheet, keeping the mizen aft, and the helm more or less "a lee," but the boat is sure to forge ahead a little, and if the wind is light she is very liable to get into "irons." A boat or a ship is said to be "in irons" when she is not under command, through flying up in the wind and losing her weigh; it generally occurs in very light winds; the boat's head comes up about two points from the wind, and the wind blows along the sails without any effect, probably one of the after sheets is a little flatter than the others, and the boat having no weigh through the water, the rudder is without any effect; and

sometimes a boat will remain in this predicament for a considerable time, if proper steps are not taken to get her out of it; in a ship the head sheets should be hauled over to windward, and sometimes even the head yards have to be "boxed round," to get her off; in a boat if their is a jib or stayforesail, the sheet should be hauled up to windward, and the main and mizen sheets let go and overhauled, and she is sure to "pay off" at once; in a cutter with a dipping lug and mizen, the mizen sheet should be let go, and one of the men should take hold of the foresail abreast of the mast, and bear it out to windward without lowering the lug this will almost always be sufficient to get the boat out of the wind.

In order to reef a dipping lug quickly on a wind the sail should be lowered just low enough to hook on the tack and sheet to the reef cringles, then hoist the sail up, and let one or two hands tie up the reef points afterwards, they can reach them easily, but if not racing or in a hurry, it is better to take in the whole reef snugly before hoisting; but in shaking out a reef always cast off all reef points before starting tack or halyards, in this way very little time need be lost in either operation. The mizen is a more difficult sail to reef, it is outside the boat and hard to get at, so the shortest and best way generally is to lower it down altogether, reef it properly, and re-set it.

With regard to mizens, some men prefer the long bumpkin, and some the short bumpkin with

a light boom to it; there is something to be said in favor of both fittings, the former is quickest got up or down, the sail is easiest reefed with it, and it sets a fairly flat sail on a wind; but on the whole I prefer the short bumpkin, it may be a little more trouble, but the sail sets better with it, and when the sheet is eased off for going free it sets a far more effective sail than the long bumpkin.

Service cutters sail well with their own dipping lug foresail, and a large standing lug mainsail stepped at the after thwart, but I shall refer to this more particularly under the head of racing.

GIGS.

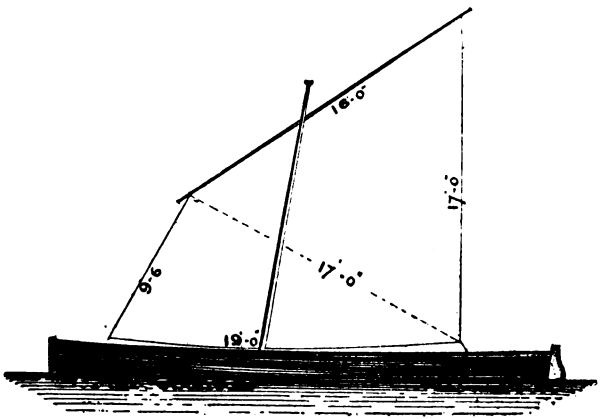
The service six-oared galleys and gigs are generally rather heavy boats, and do not pull well, but they sometimes sail very well if properly rigged.

There is probably to be seen a greater variety of rigs for gigs than for any other class of boats in the navy; one reason of this, no doubt, is that the captain of a ship looks upon his gig more or less in the light of a private boat that he can do what he likes with, and thus one sees all kinds of fancy rigs, some of them very good, and some of them rather impractical, but there is an advantage in all this, as it gives the rising generation a chance

of judging for themselves, and drawing their own conclusions concerning the merit of the respective rigs, and there is perhaps no subject connected with the sea about which there is, and I presume always will be, such a great variety of opinions as there are about the best rig for each particular class of boat, this no doubt arises in the case of gigs from the fact that different people require their boats to do different things, one man does not like sailing if he can help it, never sails for pleasure, and only hoists his sail when he has to go a long way with a fair wind; another man never loses an opportunity of sailing when there is any wind at all, fair or foul, so that he wants some rig that will beat to windward tolerably well, and between these two extremes there are all sorts of intermediate people, who like sailing at times, &c., &c.

Now when a boat is required for rowing and sailing alternately I don't think any rig can be considered quite satisfactory, unless it can be got up and down quickly, and this is one reason why I am a great advocate for one mast and one sail in a gig, there is very little gear about it, it can be got up or down in a few seconds, and if the mast is properly placed in the boat, and the sail properly made, and properly set, a gig will sail almost as well, not only off the wind, but to windward also, as with any other rig I have ever seen, and does *not* require a mizen to make her tack, in fact, I look upon all mizens in gigs as a popular

delusion, only rendered necessary through the mast being placed wrong in the boat.



I have found a sail of the following dimensions to answer in a 30 foot gig—

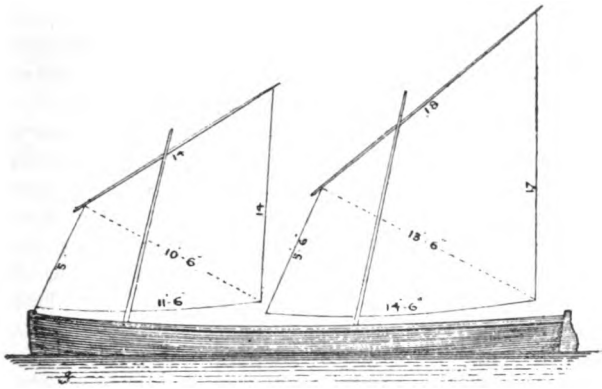
Head 16 feet
Luff 9 feet 6 inches
Leech 17 feet
Foot 19 feet
Diagonal 17 feet

The diagonal is measured from the foremost yard arm to the clew of the sail. The accompanying sketch is not drawn to scale, though it shows fairly well the shape of the sail; it is rather a large sail, and should have four "two

foot" reefs in it. When it is required to tack with a lug sail having such a long yard, the best plan is to lower the sail down altogether, unhook it, and dip the mast over the sail; when the crew get accustomed to it, it is as quick a plan as any other, and the most practicable with such a long yard.

There should be no shrouds, the halyards taken to windward on each tack, serve to support the mast sufficiently to capsize the boat, and that I presume is as much as anybody wants.

The halyards should be fitted with a whip and pendant, and not the long halyards with the block on the traveller, which is a bad fitting, it is no support to the mast, and only serves to buckle it over the bows. It is necessary with a sail of the above shape, to have three tack hooks on each side, as in consequence of the sloping direction of the luff of the sail, if the tack were not brought further aft as the sail is reefed, the clew would come too low down in the boat, and the sail would not set properly. I have found three tack hooks sufficient; one for the whole sail and 1st reef; one for the 2nd and 3rd reefs; and one for the close reef, which leaves a very snug sail, being little more than a leg of mutton sail.



Foremast 13 feet
Foreyard 15 feet
Mainmast 14 feet
Mainyard 19 feet

Another good rig for gigs is two dipping lugs, with short masts and long yards, and the luff of the sail so short as to allow of its being dipped without lowering the halyards.

The above sketch is not drawn to scale, but figures are correct, and the sketch gives a fair idea of the shape of the sails when made; and I may here remark that it is always necessary when giving a sailmaker the plan of a foursided sail to make, to give him the diagonal as well as the four sides, for a little reflection

will show, that it is quite possible to make two quadrilateral sails of quite different shapes, although their sides may be respectively equal.

In the above rig, the masts should be very stout, and well supported at the partners, as there should be no shrouds. and the halyards (single) should be taken up and down the mast, and rove from forward aft, as the foremost yard arm is to be dipped; single sheets spiced into the clews of the sails are sufficient, but two small jiggers are necessary for hauling the tacks of the sails taut down, in order to make them set properly. Both tacks lead amidships; the main sheet travels on a horse abaft the back-board, but the fore sheet must be shifted over each time, as it is not practicable to work it on a horse in that part of the boat. I have found that a 30 foot gig will sail slightly better upon all points of sailing with this rig than with a single lug, and the only disadvantage is that it takes a little longer to get up or down. One of the advantages of it is that the sails can be carried to windward of the masts, as in the French rig previously mentioned; this is a great advantage in making short tacks, though of course the boat sails better with them in their proper position, and they are very quickly and easily dipped when the men get accustomed to it as the halyards are not started at all, when once the sail is hoisted; the luff of the sails must be short enough (about 5 feet) to allow a

man to reach the foremast yard arm comfortable, and the sail is then swung round with great ease. This is a very snug rig when reefed down, as the sails come to little more than a couple of low lateens. A spare mast hole should be fitted in the middle of the boat, so that in very bad weather one of the mast can be stepped there, and a single lug carried.

There are several other rigs for gigs, such as three lateens, with short masts raking forward, and very long yards, and no luff to the sail ; this rig is very difficult to reef, and the yards, must be very long, so that it can scarcely be considered a handy rig.

Sprits and gaff sails are not suitable for gigs so I shall not mention them under this head.

The only other rig worth mentioning for a gig is two leg of mutton sails and a jib, " Sliding Gunter"are best for this, and some gigs, particularly the heavy " life whalers," appear to do well under it; the French " baleiniere " carry it, and it is a pretty rig, but it is not one that I have ever taken a fancy to for any class of boat, the sails are I think unnecessarily lofty for the amount of canvas in them, all the upper part of the sail has a great effect in heeling the boat over, at the same time that it has very little propelling power, so that I think the canvas can be better disposed in in a lower plan of sail, although there is no doubt

that a well-made sliding gunter sail can be made to set very flat indeed, and the short, broad, deep Bermuda boats do well under this form of sail.

JOLLY BOATS AND DINGIES.

Jolly boats and dingies are generally fitted at the dockyards with lug sails, but it is just at this point in the size of boats that the sprit sail begins to come in handy, and I look upon the sprit and jib as the handiest of all rigs for small open boats of about 18 feet and under; a sprit is a very flat and powerful sail, but when the sail gets too large, and the sprit consequently too heavy for a man to be able to handle it with ease, it ceases to be a convenient sail, and the gaff sail takes its place for standing rigs. One remarkable exception where the sprit sail is used in large vessels is the case of river barges, which are fitted to lower their masts for the purpose of going under bridges, some of these are large vessels of several hundred tons burden; the rig is peculiar, the mast, which is comparatively short, works on trunnions in a tabernacle, and the sprit, which is a very large and heavy spar, is permanently attached to the masthead by a strong piece of rope, the mast and sprit are lowered simultaneously by means of a powerful purchase upon a very stout stay. By this means a large spread of canvas is obtained upon a comparatively short mast, but this rig is quite

an exception to the general application of the sprit, which, as I have already observed, is only suitable to small boats. One great objection to the sprit sail is that it is a difficult sail to reef, and if the sprit is taken out altogether it takes too much sail off the boat, and probably renders her unmanageable. The snotter which supports the heel of the sprit should be made very strong, for if this carries away the sprit is very apt to go through the bottom of the boat.

The split lug is an abominable and an unsightly rig, and is only fit for the "long boat" of a Portuguese merchant ship.

The standing lug is not a good sail as the principal sail in a boat, it is not a powerful or dragging sail, neither is it a weatherly sail, but it comes in handy for mizens, and is also not bad for a mainsail with a good dipping lug in front of it, but this latter applies more to larger boats than to jolly boats and dingies.

A sliding gunter mainsail and a jib is not a bad "fine weather rig" for a dingy, but it necessitates a long boom, which is dangerous, and always to be avoided in a small boat.

CHAPTER IV.

YACHTS.

It would be entirely outside the scope of this little book to enter at length into the subject of yachts and yachting, a subject which I presume embraces every sort of craft, from Mr. Lambert's great steam yacht *Wanderer*, now circumnavigating the globe, to the cock punt at Brighton, with 'Arry and his gal out for an afternoon sail. All round the coast of England, in every harbour, creek, and bay during the summer months may be seen their snowy sails and graceful hulls, tacking about in all directions, and on every sort of errand bent, thus clearly showing the seafaring tendency of the British race; but when autumn winds begin to howl, and October nights to shorten in, then the wiley yachtsman either puts his helm up and seeks the sunny shores of the Mediterranean, or hauls his vessel up on the mud at Haslar Creek, and wisely leaves his professional brethren to buffet with the storms of winter.

Yachts may be broadly divided into two classes, cruizers and racers, and although some of the larger ones endeavour to combine both qualities in one vessel, I imagine that it is not generally attended with much success.

The principal racing classes are the five, ten, twenty, and forty tonners; all these are cutter rigged, and race together in their own classes; but the larger yachts of whatever rig they may be, usually all race together, and allow each other time for tonnage, and time for rig; thus cutters and yawls both allow schooners time, and cutters also allow yawls time; in order to make these mixed races at all fair, it is usually arranged that schooners shall sail at $\frac{3}{4}$ and yawls at $\frac{4}{5}$ of their actual tonnage. The necessity for handicapping the cutters, arises from the fact that they go to windward so much better than the schooners, and better than the yawls, and proves what I observed in a previous chapter (viz.) that the arrangement of having the principal part of the canvas disposed in one large sail, ensures going to windward better, than dividing it into several smaller sails; and it is found in practice that a very small gain in working to windward is worth a very large gain in running before the wind, or "reaching"; therefore in all ordinary races where there is a considerable amount of beating to windward, the cutters have the best of it; but in some of the ocean races, when a leading wind is not uncommonly experienced, for the whole or greater part of a race, then the schooners often have it their own way, and win on their merits.

With regard to the size of yachts which can be conveniently rigged as cutters, I think that it is now pretty generally acknowledged that

about 100 tons is the limit, even for racers, and that after that, the mainsail becomes too big a sail, and then yawls and schooners take their place, for all the larger yachts.

I suppose that the greatest revolution in yachting which has ever taken place in this country was caused by the appearance in the Solent of the famous *America*, in 1851. She was a schooner of about 170 tons, and she was built and her sails were set upon a novel principle, she had a good deal of beam carried well aft, a shallow body, but a deep keel aft, and a long sharp bow, with a very light draught of water forward; the deck view of her was something like an elongated pear in shape, with the small end forward; in consequence of her light draught of water forward she carried no jib, only a staysail, foresail, and mainsail, all of which were laced to booms, and in light winds she carried a jib-headed main gaff topsail; she had no fore-topmast. All her sails set as flat as boards, and she "looked" and "fetched" about a point nearer to the wind than any of our English yachts of that day, notwithstanding that she was a schooner, and the consequence was that she beat them all into a cocked hat, and thus caused a great revolution in the art of yacht building. At first she was copied slavishly with more or less success, but very soon she was improved upon; the long sharp bow and the flat sails were adhered to, but the shallow body was given up, and deep bodies and lead

ballast soon came into vogue. The *America* herself was sold to English owners for a large sum of money, and never did much good afterwards, she was badly put together, of unseasoned timber, and very soon got rotten; the Yankees not only beat us, but sold us also. Our yacht builders then woke up, and almost every year since that has seen something new in the field, generally, but not always, an improvement. Occasionally some famous old craft like the *Arrow* has kept the supremacy, or at any rate made a gallant fight against all comers for many years, but eventually has had to succumb to a deeper body and more lead ballast, until it almost seems as if there was no limit to the deepening of the body and the piling on of lead outside and inside, and the consequent hoisting up of larger sails.

The present English rules for measuring yachts for tonnage have certainly not tended to improve their build in any respect except as racing machines; but then if a man wants to race, he would be very silly to race in a fishing machine, or in a cruizing machine, or in anything *but* a racing machine; and the idea that a man can have a comfortable cruizing yacht, which he can enter occasionally for a race, and stand a chance of winning in, is I think pretty nearly exploded, and has become about as reasonable as entering a hunter for a first-class flat race.

As long as the present rules for measuring yachts continue in force in the principal clubs, so

long the present form of yacht will continue to be built, though I never could see why "depth" should not be made to form an element in the computation; we should then not have the anomaly of a "Five tonner" carrying seven tons of lead ballast, besides other weights.

A great and broad distinction still seems to govern the fundamental principles upon which the English and American yachts are built. The Americans obtain the stability of their vessels by great beam, they carry but little ballast, but they are broad and flat, and skim *over* the water, they have a fine entry, and a deep keel or centre-board to make them go to windward.

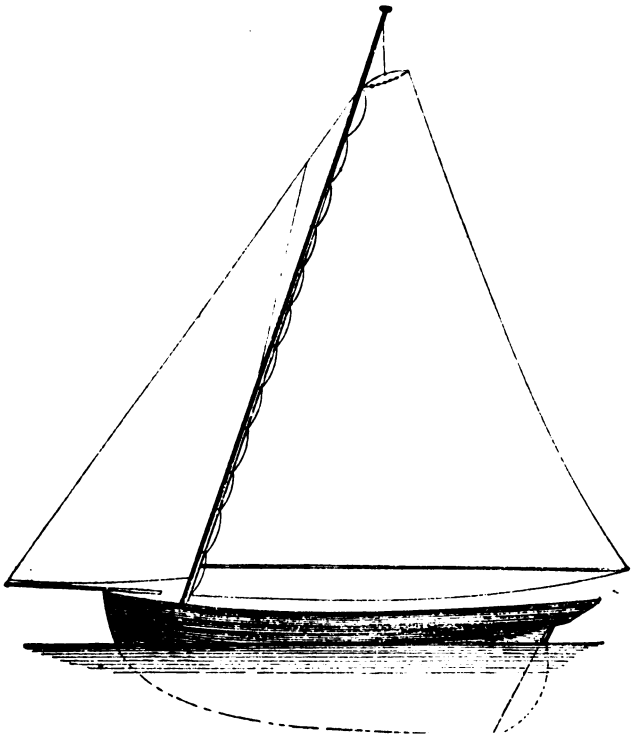
The English ignore beam, and obtain their stability by a very deep body with a lot of lead in the bottom of it, or attached to the keel outside; they plough *through* the water, and the "old salts" sneer at them and call them "lead mines," but they answer the purpose for which they are built.

The American yachts are admirably adapted to the great stretches of inland water which exist in the United States, where the depth is comparatively shallow, and the sea comparatively smooth; but it has been conclusively proved that that type of vessel cannot go to windward against our English "lead mines" in ough water; weight and depth then come into lay, and the shallow body has no chance.

CHAPTER V.

BERMUDA BOATS.

The intricate waters of the Bermuda Islands are navigated by a style of boat the look of which is no doubt familiar to many people who have never been to Bermuda.



They are short, broad, deep, handy little vessels; they are not fast, though they get to windward in a wonderful manner, and are admirably suited to the waters they have to sail in, where there is generally a smooth sea and a fresh breeze; they are very hard to beat in their own waters, but they don't seem to stand transplanting, and I have never heard of them doing much good in England, or indeed anywhere out of Bermuda; there is a spurious imitation of them at Malta, which I think a true Bermudian would repudiate.

The waters of Bermuda are a perfect labarynth of coral reefs, intersected by numerous deep water channels, and hence arises the necessity for the peculiar form and rig of the Bermuda boats, as they are required to be very handy and very weatherly, and depth is no detriment to them, as there is generally plenty of water or only a few inches; so that the broad flat Yankee boats with their centre boards, although admirably adapted for navigating shallow inland waters, would not be suitable for Bermuda, as they could not go *over* the reefs, (some of which are dry), and they would not be near so handy for threading their way *through* them. One remarkable quality of the Bermuda boats is their power of shooting to windward, they take a wonderful "fore reach" in stays; and it is not an uncommon thing to see one of them with good weigh on her, shoot head to wind through a

channel of considerable length, and so narrow, that she could not possibly have beat through it.

The mast in these boats (as will be seen from the sketch) is stepped very far forward, and rakes aft considerably, it is very stout at the partners, and tapers off towards the mast head; there is scarcely any rigging, generally only one small shroud on each side, and these appear to be like the curl in a pig's tail, more for ornament than use, as the Bermudians take them off when they race, just at the time that one would think they were most wanted; but they have a theory that the boat sails faster if the mast is allowed plenty of "play"; and it would be presumptuous to dispute the correctness of the theory, as far as this particular class of boat is concerned, though it is not found to be generally practicable; it requires of course an extra stout mast, and great support at the partners. The Bermudians also lace the mainsail to the mast when they are going to race; it is laced taut up and down from tack to head, and the mast being tapered, the sail cannot be lowered when once laced; thus they cannot reef, and if a boat starts for a race with a whole sail, she must carry it or swamp.

The Bermudian races consist as much as possible in beating to windward, this is what they appear to think the one thing needful in a boat. On the morning of the race two marks are laid down in the Great Sound, the only open

piece of water they have got; one of these marks is dead in the wind's eye of the other one, three miles distant; the boats start from the lee mark, and go twice to windward, and once to leeward, winning at the weather mark on the second round: thus it will be seen that the Bermudians place but little value upon any other quality save that of working to windward; their boats are slow "off the wind," and run very badly, completely burying themselves in a strong breeze; they are also dangerous to gybe; in fact a Bermudian will not gybe his boat in a fresh breeze; he will in preference put his helm down, and come to the wind, and get the wind on the other quarter by tacking and then bearing away: if they were to gybe in a strong breeze, they would in all probability lose the mast.

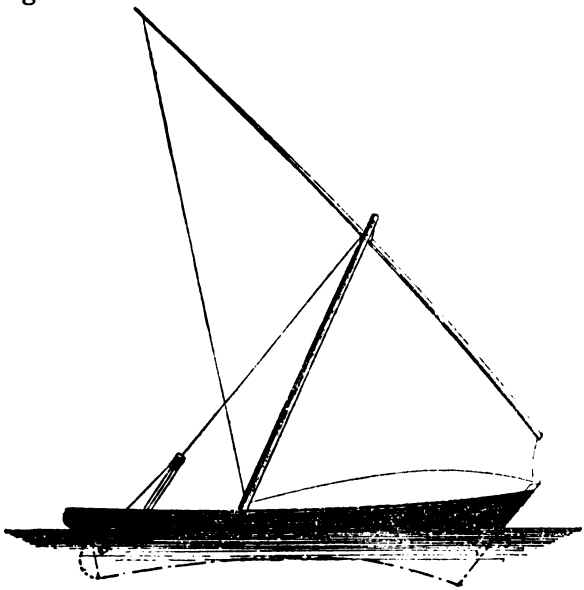
There is a peculiar plan in these boats for making the mainsail set flat; the main boom instead of being fitted with jaws in the usual manner, has an eye bolt in the foremost end of it, which end projects considerably before the mast; the after end of the boom is secured to the clew of the sail, and the boom is then rowsed taut aft with a small tackle taken from the eye bolt to a strop round the mast; this produces a wonderfully flat sail; the strop round the mast is three or four feet above the deck, whereas the tack of the mainsail comes close down, and this arrangement prevents the after end of the boom from cocking up.

In working to windward the Bermudians do not trim their main booms so much amidships as is usual with *gaff* sails, but then the whole sail *right up to the head* makes the same angle with the keel as the boom does; whereas in a gaff sail the gaff "sags" very much to leeward, and makes a much greater angle with the keel than the boom does; and between the gaff and the boom every section of the sail makes a different angle with the keel: this of course is wrong in theory and the Bermudian is right; but there are other things to be taken into consideration besides the angle with the keel which the sail makes: thus the Bermudian rig is open amongst other objections, to the same one which I mentioned in a previous chapter with regard to the sliding Gunter sail, namely that the upper part of it, while it exerts (from its leverage) great power to heel the boat over, has comparatively but a small power to drive her ahead; so although it may be conceded that the Bermudian rig is one of the best in the world for working to windward; yet as most people require their vessels to sail off the wind, and before the wind, as well as to windward; and as the Bermudian rig is so very bad on these points of sailing, we are bound to come to the conclusion that the gaff sail is a better "all round" rig; and that the Bermudian is only suitable to its own waters; where I believe it still holds, and always will hold the supremacy.

CHAPTER VI.

BOMBAY BOATS.

The Bombay boats have a very peculiar rig :



The mast, which steps somewhat abaft the centre of the boat, rakes forward a great deal, it

is very stout as it is unsupported by anything except the halyards which lead aft as shown in the sketch ; the yard also is a very heavy spar in the larger boats, being always considerably longer than the boat herself ; there is no " traveller " or " parrel," and the yard hoists right up to the sheeve hole in the mast head.

The deck view of these boats is very like that of the famous " America " schooner, long sharp bow, beam carried well aft, round stern, and altogether like an elongated pear ; but the greatest peculiarity consists in their under water profile, as shown in the sketch by the dotted lines, it is exactly the reverse of the usual plan, which is to have the greatest draught of water aft, and to have the keel convex, or " camber " as it is called, whereas these boats have the greatest draught of water forward, at a peculiar looking sharp point, where the long, straight, raking stem joins on to the arched keel, which it will be seen is concave instead of being convex. Now the reason of all this is obvious, these boats cannot tack, they never attempt it, it would be impossible to swing that great yard and sail round the mast with the boat head to wind, and the sail would be useless if it lay aback or to windward of the mast as some latteens do ; so the result is, that they always " wear," instead of " tacking," and this they do with great facility. That peculiar looking forefoot is all " deadwood," it makes the boat very weatherly, and it seems to

act as a pivot upon which she turns when the helm is put up for wearing. It should be remembered that it is always the stern of the boat which moves, more than the bow (in *all* boats) when the helm is put over, and in these boats this movement of the stern is still more increased by their peculiar form, and when the helm is put up, the stern of the boat appears to fly up in the wind, and the bow to remain stationary, and she wears round in a wonderfully small space, and very quickly; the foremost yard arm is brought in to the mast, and the wind takes the sail round "before all," the sheet is hauled aft on the other side, and the foremost yard arm taken forward again to the bow, and the whole operation appears to be performed with very little trouble.

There was one of these boats at Bombay some years ago, whose yard was said to be 90 feet long, the boat herself looked as if she were about 40 or 50 tons, and it was said that she could beat any English yacht going to windward, notwithstanding that she had to "wear" every time instead of "tacking"; but then I expect that the English yachts she had to sail against, were vessels of a very inferior type. This rig could only be worked in a place where there was plenty of sea room, and no narrow channels, nor intricate navigation of any sort, as in most harbours, it would of course be utterly impossible to "wear" every time instead of

"tacking." The Bombay people make their sails in a curious manner. The plan of the sail is laid out (on a grass plot we will say) and the roping, which is stout, and goes all round the sail, is then laid down and pegged to the ground; small cords are then spliced into the head rope at intervals a little less than the width of the stuff of which the sail is to be made, these are pulled down, and hitched lightly to the foot rope; the stuff is then laid on in cloths, which are sewn together, with the cords inside the seam, and then the cords are pulled taut down, and secured permanently to the foot rope; this produces a very hollow foot to the sail, but it also makes a flat sail, without bringing any strain on the stuff itself; and it is just as well not to do so, as most of these sails look as if they were made out of all the old clouts that have been worn in Hindostan since the days of Clive.

CHAPTER VII.

CHINESE BOATS.

Let us now move on a little farther East, to the oldest empire in the world, and see how they manage their sails in that strange land, for their is something to be learnt even from the Chinese, although it is the custom to look with scorn and pity on their clumsy looking junks, with their curious mat sails, admirably adapted though they are, to the requirements of the marvellous system of inland navigation, with its shallow rivers and lagoons, and the labyrinths of its numerous archipelagos.

The larger seagoing Chinese junks are neither fast, handy, nor beautiful; but they carry a great deal, draw very little water, and are said to be good sea boats, and no doubt they answer their purpose well, as a Chinaman is never in a hurry; but the smaller vessels of about 50 and 100 tons, which navigate the inland waters, and the archipelagos, are, I have no hesitation in saying, *the handiest vessels in the world.* They are very shallow, yet they work to windward well, they run fast, and they can tack, or wear, almost in their own length, the sails require very little working, they are always as flat as a board, and they are reefed with the greatest facility by

simply lowering the halyards; and as each batten has a separate parrel to it, they all lie down quite snug, one on top of the other, as the sail is lowered.

There is a great variety of boats in different parts of China, and northern and southern boats differ considerably from one another, but the same leading features are common to all, but as the southern are the best boats, and the most typical, I will give a sketch of one about 50 tons, though they vary greatly in size without varying much in rig.

It is impossible in a small sketch of this size to show the peculiar arrangement of cords which serve the purpose of a sheet, and which pull equally upon all parts of the leech of the sail, and keep the whole sail at the same angle with the keel. The sail is made usually of a very coarse sort of grass matting, and the battens which run along it at intervals, are generally made of bamboo, and are thus light and strong, they keep the sail perfectly flat upon all points of sailing; so that it would appear that the Chinese have known for many centuries the secret which our yachtsmen only found out a few years ago.

Perhaps one of the most remarkable features in these boats is the enormous rudder with gratings in it, this rudder acts as a lee board as well as a rudder, and in sailing "on a wind" it prevents the boat from making so much lee way as she otherwise would do, it also enables her to turn with wonderful quickness, and the total absence of deadwood, and sternpost, also assists in this turning power, as it allows the stern of the boat to fly round in whichever direction the rudder is pointed. The rudder projects considerably below the bottom of the boat, and is fitted to trice up into a slot or rudder-well in the stern, so that it shall not bear the weight of the vessel when she takes the ground; this increased depth of the rudder gives of course increased turning powers, but it is a plan which is not

entirely peculiar to the Chinese, for the Venetian fishing boats, and one or two other classes of vessels in the Mediterranean are fitted with rudders which project below the boat, and can be triced up at will: it gives great handiness, and increased weatherly qualities, upon a very light draught of water.

The Chinese boats have great beam, and great height out of the water at the stern, but they are low and rather narrow at the bows, these are the leading characteristics of all their boats, coupled with a high and overhanging poop for the accommodation of the whole family, who all live on board, men women and children, sometimes three or four generations of them; for there is an enormous floating population in China, who never go on shore, but live entirely in boats, of all sizes, down to diminutive little punts, not so large as a ship's dingy, in which may be seen a family of seven or eight people of all ages; in this way they evade the house tax, and act as scavengers to the harbours, picking up every bit of offal and refuse that is thrown overboard from the ships.

The Chinese and Japanese do not use their oars in the same way that we do; they invariably "scull" with long crooked oars having very wide blades, these are worked on a pivot, and afford a powerful means of propulsion admirably adapted for navigating narrow creeks and canals, crowded

with boats, where the use of oars in the usual manner would be impossible ; the gondolas of Venice are worked somewhat in the same way, though the propelling stroke differs from the Chinese sculling, and is very difficult for a novice to acquire, and the first trial is not unlikely to result in a ducking in very dirty water.

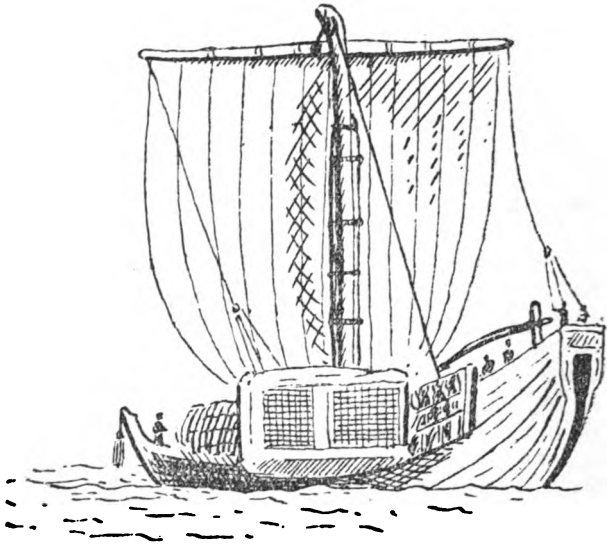
Some of the Northern junks in China have as many as five masts ; two of these are generally mizens stuck up on the poop, one on each side ; the after leeches of their sails are stright instead of being rounded as in the Southern junks, and the vessels themselves are wall-sided, have flat bows and sterns, and are in no way such specimens of naval architecture as to invite imitation, though they carry large cargoes, and can go into very shoal water.

Almost everything in China seems to be carried by water, along the wonderful system of canals, and a great deal of it is done by sail power, as in many parts the country is low and flat, being only a few feet higher than the level of the sea, and as there are but few high trees the breezes sweep across it quite unobstructed and the lofty brown sails of the numerous boats may be seen moving about rapidly in all directions, producing a very curious effect, as the hulls are generally out of sight.

The European residents in China apply the Chinese rig to European built boats with

considerable success, particulary at Hong-kong, where there is a class of open gigs with very large Chinese sails, which sail extremly well in light winds; it is a rig peculiary adapted to light variable winds; there is no shifting over of sheets, or dipping of lugs, of loss of time of any sort; nothing to do but to let the sails swing over which ever side the wind takes them; so that in Hong-kong roads, where the wind is usually very light, and very shifting, the China rig has a great advantage over all other rigs; though I should very much doubt its being able to hold its own in steady winds and strong breezes.

The Japanese junks are if possible worse specimens of naval architecture than the Northern junks of China; they have enormously high sterns, and only one very heavy mast which steps amidships, and upon which is hoisted a large baggy square sail, without any battens on it like the Chinese sails; and although they appear to sail well before the wind, nothing could well be more unsuited for working to windward, and as a matter of fact I don't think they often try it, but anchor instead, and wait for a fair wind. The Japanese however are adopting so rapidly all the Western ideas and appliances, that their junks will no doubt soon be a thing of the past.



BOAT RACING.

CHAPTER VIII.

RACING.

Boat racing under sail, when not carried too far, and when people don't bet about it, is a very good thing; and the generous practice of some admirals, of presenting a cup once a year, to be sailed for in their squadron, is productive of many good results; it creates a healthy spirit of emulation, it induces young officers to study the subject, and to find out for themselves the best rig, and the best trim for their boats, and the most seamanlike way of handling them, it also helps to explode many popular, and erroneous theories, about enormous sails, and fancy rigs which look very well on paper, but do not stand the test of practice; and the excellent rule of prohibiting sinking ballast, prevents them from overstraining their boats, or putting into them larger masts and sails, than can be fairly carried in an open boat.

In the few remarks which I propose to make upon the subject of racing, I shall only state my own opinions, arrived at from my own experience, and as that has been of a very limited nature, my remarks must not be taken as axiomatic laws, or treated as such, but if they give rise to discussion, and discussion to practice, I shall

perhaps have done something for the advancement of my subject, and I shall not feel hurt to know, that some men of wider experience, differ from my opinions.

One of the first things to bear in mind, is, that when once the race has started, there can be no "heaving to" to repair damages, or to make any alterations of importance, without the strong probability of putting yourself out of the race altogether; it is therefore most unadvisable to come to the post, with the intention of starting for a race, without having previously tried your boat and her fittings thoroughly, upon all points of sailing, found her best trim both in smooth water and in a sea; set and taken in your "running sails" with the wind right aft and on each quarter, and also practiced the crew at "tacking" and "reefing," as it is generally impossible to foresee what weather there will be on the day of the race, and you may have to take in a reef in the middle of it. It is advisable when racing, to take some spare gear with you in the boat, in case of accidents of a slight nature, which might be repaired; some spare rope, a spare block or two, a ball of spunyarn, and anything else which you think is at all likely to come in useful, and which can be easily stowed; take one or two spare bailers in case you have to "carry on," for remember that every drop of loose water that you have in your boat, impedes her sailing and makes her cranker. Take also a pair of bin-

oculars, they often come in useful for picking up the position of a mark boat, or buoy, which has to be rounded in the race, and which may be more or less masked, from being in a line with high land, or amongst shipping, or from any other cause; and many a race has been lost from the leading boat not seeing, or mistaking a mark boat, and steering a course too far to leeward, and thus allowing "No. 2" to pass her and to win the race.

Examine all the the boat's gear yourself, and trust to nobody, before starting for a race; see that there are no sprung sailing thwarts, or masts, or yards, no rotten ropes, half straightened hooks, ripped sails, or anything else which is at all likely to fail you during the race, remembering that very often an extra strain is put upon gear when racing, and that ropes and spars, which previously showed no signs of weakness, may have their backs broken by the last straw, and "give out" at the critical moment, which is a great sell to say the least of it, and although it is sometimes unavoidable, still it is always worth while to take every precaution: do not however follow a practice which is very common, and which is worse if possible than starting with worn out gear, and that is to reeve a lot of brand new ropes just on the eve of starting. if you do so without having had them previously stretched, and the turns taken out of them, and given them a little work, they are extremely likely to

"kink" and "jam" in the blocks, and to sell you just at the critical moment, when your men are anxious and excited, and you want everything to go particularly smooth and easy. *Never* get excited yourself, and never lose your temper with the men, even if things do go a little bit wrong sometimes, it is not the best way of curing matters; blunders committed whilst racing are generally caused by excessive zeal, and are worthy of commendation and not abuse, which always makes things worse: above all things keep your head even if you cannot keep your temper, look where you are going to, and don't run into your friends, or the mark boats, reserve ramming tactics for the enemies of your country, when you command an ironclad; a foul during a race is always unsatisfactory, even if you are on the right tack it is better to go round, or to give way, than to have a collision, as the other boat may be erring from ignorance, and although he would be disqualified by his error, that would be very little satisfaction to you, if he also placed you hors-de-combat, by carrying away your mast or splitting your sails, or doing you some other damage which spoilt your chance of winning.

Let us now suppose all the boats have arrived at the starting post, and are moored by their sterns to a hawser with their sails down; this is the usual way of starting boats, and it is the fairest whenever practicable, and the longer the first run to leeward is, the better, as it gives

the boats a chance of getting clear of each other and prevents a crowd at the first mark boat, where there is so often a general fouling match, through each boat trying to cut his neighbour out round the mark.

You will of course moor your boat to the hawser by a "slip rope," and you should station a steady man to it, one who is not likely to lose his head in the excitement, and to let go when he ought to hold on, and hold on when he ought to let go.

Now station all your men for making sail and see that each man knows exactly what he has got to do, and warn them all to do it without hurry or confusion, for it should be remembered that a few boats lengths at the start in a sailing race, is of very little consequence; it is quite different from a rowing race, where men are very apt to lose heart if another boat gets the lead of them; but sailing boats are not affected by any such sentimental grievances, and as a matter of fact, it is very rarely found that the first boat round the lee mark boat, wins the race; it is almost always the best boat at "working to windward," and not the best boat "off the wind," that wins, and these two qualities are very rarely combined in one boat; so don't be in too great a hurry to get away, and if you see that there is any chance of a foul at the start, just hold on for a few seconds and let the other boats get clear of you, you wont lose anything by it.

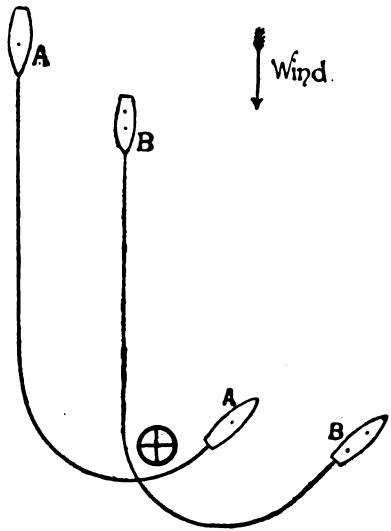
Now then, stand by! Bang goes the gun, and off you all go before a fine fresh "whole sail" breeze; up go the squaresails and spinakers and gafftopsails and all sorts of "kites," most of them more or less foul in the excitement, but by and bye they all get themselves hoisted up clear and away you all go gaily before the breeze; and remember that there is no harm in having good "running" sails as long as they *don't interfere in any way* with your working sails; it is just possible that a good squaresail may enable you to pull off a race, if it happens to be a very close "run in" at the finish, but on no account should you sacrifice in any way the efficiency of your working sails by hampering them with halyards, or booms, or gilguys of any sort, for the running sails; for as I remarked in a previous chapter, one yard to windward is worth six to leeward.

You have now run down to leeward, and are getting near the lee mark boat, and thinking about taking in your running sails and hauling to the wind; let us imagine for the sake of argument that you are about the middle of a crowd, there are three or four boats ahead of you, and three or four astern, but there is one boat right alongside of you, you two have been running neck and neck all the way, and now the question is—who is to cut the other out round the mark boat, and find himself on his adversary's weather bow, or at any rate on his weather quarter, as soon as

you are both round the mark, and close hauled for your beat to windward.

Let us say that the mark has to be left on the port hand, that you are now nearly dead before the wind, and that you have to haul close to the wind directly you round the mark; under these circumstances do all you can to get *out side* your adversary, or in other words to starboard of him; do not steer straight for the mark, but steer a course which would take you two or three boat's lengths to the right of it, and then if your adversary steers so as to pass close to the mark before he puts his helm down for rounding it, (and I may here observe that this is the popular idea of cutting out) then you will have no difficulty in getting the best of him; and I will endeavour to explain by means of a diagram how you can do so; observing first of all that if the two boats are exactly even with each other, you must get your boat just clear *astern* of your adversary; this is easily done by jamming the helm hard over, first one way, and then the other or by flattening aft the sheets.

Now it is evident from the following diagram that although A was astern of B at the first position, he has got the best of him at the second position; and the reason is this—A *made her turn before she got to the mark-boat and passed close to leeward of it;* but B having passed close to the mark-boat whilst before the wind, had to *run*



to leeward whilst making her turn: and thus A finds herself upon B's weather quarter, which I need hardly say is a very advantageous position, as she will now most probably pass B to windward, for B's helmsman will sail his boat as close to the wind as possible, and try to claw to windward all he can, in order to prevent A from passing to windward of him, but A's helmsman has nothing to do but to sail his boat "clean full" and let her go through the water, and then if the two boats are at all equal in speed and weatherly qualities, he will pass B like a flash of greased lightning, and I need scarcely remark that it is a

very demoralizing thing to have a boat pass to windward of you, take the wind out of your sails, and leave you without any "weigh" on astern and to leeward.

There is another thing worth remembering in rounding a lee mark boat in boats or any long shallow craft, though it does not apply to yachts and deep vessels, and that is, that it is best to "round to" with small helm, and by working the sheets cleverly (after ones first), and thus come to the wind with good weigh on the boat, instead of jamming the helm hard over, stopping her weigh and coming to the wind like a log.

You have now passed the lee mark boat, and have settled yourselves down to a regular good thrash to windward, of two miles, let us say, now comes the tug of war, and if the wind is steady, and there are no flukes, or accidents, the best boat best handled will win the race.

Everybody should now sit down as low as possible in the boat, all the men should be right down in the bottom, and there should be nothing human visible above the gunwale of the boat except your own head; remember that you don't carry your eyes in your stomach like an Octopus, and therefore there is no advantage in making a scaregull of yourself by sitting up on the weather gunwale with your cap on the back of your head;

besides the lower you sit in the boat the better chance you have of seeing under the sails to leeward, and of looking out where you are going to. We will of course suppose that you have trimmed your boat and her sails in accordance with what has already been said on the subject, and that you are doing your best to windward. The next thing to do if you want to win the race, (and we will imagine for the sake of argument that you do), is to look out for the boat that you consider your most dangerous adversary, go for her and get on the same tack as she is on, and try conclusions with her at once; you will soon see who has the best of it, and if you find that you can beat her, (ever so little) and that you don't think any of the others dangerous, then stick to her like wax, never let her get away from you, tack whenever she tacks, stick on her weather beam, and don't give her the chance of a fluke, or of benefiting by a shift of wind, which might put her to windward, and you to leeward, if you were on different tacks.

On the other hand if you find that this same dangerous adversary can beat you on even terms, then you must do all in your power to get away from her and shake her off; if she tries to stick to you, worry her by tacking constantly, perhaps your boat will be quicker in stays than she is, and thus you may gain an advantage, but if you do manage to shake her off and get away on the opposite tack to her, and then the

wind should shift a point or two, it is obvious that if it shifts one way, it will put you to windward, whereas if it shifts the other way, it will only put you a little further astern than you were before; thus you take the only chance there is of beating a faster boat than yours.

If several of your adversaries are faster to windward than you are, then of course your chance of winning is very small, and the only thing to do is to take out a line of your own; it is useless to do the same as the other boats do, so you must stand off on the opposite tack to them, even if it is obviously the wrong one, and crosses a lee tide, or has some other decided disadvantage attached to it; it is your only chance so you should take it; the wind may shift considerably, and while your adversaries are jockeying each other with a failing breeze in one direction, they may perhaps, to their mortification, see you coming out from under a point of land in the opposite direction, with a slashing fine breeze, and snatching the honours from them in a very inferior boat. This of course would be a fluke; but in many harbours and roadsteads, especially where there is much high land about, the wind is often shifty and uncertain, and a fluke is always worth trying for when you have no other chance.

A very common mistake that is made in boat racing, is to carry too much sail, I feel sure

that many more races have been lost by carrying too much, than too little sail; no boat can do her best when she is over pressed, so you should try and regulate your sail exactly according to the amount of wind that may be expected throughout the race, remembering, if you have any doubt about it, that it is easier to shake out a reef than to take one in.

With regard to choosing, rigging and preparing a boat for a race, there must always be a considerable variety of opinion; but as a general rule, supposing that you have a choice of two or three boats, take one with a long floor; length of floor is of more consequence than fineness of ends; two sharp ends with a lump in the middle, never did any good yet; it is a mistake that is very common with English boat-builders, and that is the reason why the French boats generally beat ours both in pulling and sailing, their boats are bluffer above water, but they have longer floors, and consequently more buoyancy. The requirements for an open sailing boat and a decked yacht are quite different; the yacht is intended to carry lead or iron ballast, and may generally be built very deep and without any floor at all.

I don't suppose that any of our English racing yachts would stand upright at all without a considerable quantity of ballast, or lead in the keel, even if she had no mast in, she would

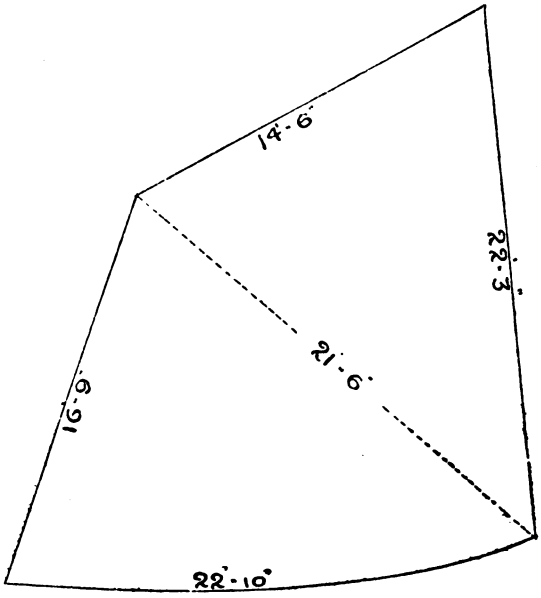
tumble right over on her side, in consequence of her shape; but for a boat that is to sail without "sinking ballast," a good flat floor is absolutely necessary, and she must depend for her weatherly qualities upon a keel or centre-board, after the manner of the American yachts; therefore choose a boat with a good floor, so that she may have something to stand upon when you put sail on her; also choose a boat that has a fair amount of free-board, or height out of water, so that she will not begin to take the water in over the gunwale directly she begins to heel over, or gets into a little rough water.

Your choice should also be guided more or less by the weather that is to be expected, remembering that as a rule, light boats do best in light winds and smoooth water, and heavy boats in strong winds and rough water.

With regard to rig, almost all rigs are good, provided the sails are well made, well set, and the boat well handled; almost everyone has his own fancy about rig, according to what rig he has won races, or seen others win races with. I am particulary fond of some shape or form of dipping lug for almost every class of boat, provided you can get men to handle it properly; I have already in a previous chapter pointed out some of the advantages of a dipping lug, the principal one being that it allows a boat to lie closer to the wind than any other sail, but it should also

be remembered that in racing with a dipping lug, you are dependent to a great extent upon the skill of your boat's crew, far more so than with any other rig; if the crew make a mess of dipping the lug at a critical part of the race, they may lose a race for you which you would otherwise have won; but notwithstanding this possibility I prefer it to any other sail, and the best rig that I know of for an ordinary 30 foot man-of-war cutter, is a good large dipping lug foresail and a standing lug mainsail, with the mainmast stepped at the after thwart, and if it is found that the sails lap over each other too much, the foresail can easily be carried forward a little more, by rigging out over the bows a short stout bumpkin, about two feet long, to hook the tack on to. This rig with an extra lug to set as a square sail when running, and a jib to set *off the wind only* on a flying bowsprit, will get about the best sailing out of an ordinary cutter. In order to get the mainsail to stand properly, there should be a wire mainstay taken to a bolt clenched through the keel, not more than four feet from the mainmast, otherwise it interferes with dipping the foresail.

The following dimensions make a good dipping lug foresail for a 30 foot cutter.



The foremast yard arm should be dipped, and the halyards rove from forward, and the shrouds taken well abaft the mast, as in all dipping lugs, the tendency is to drag the mast over the bows when the sail is hoisted.

Water ballast only should be carried, and this should be regulated according to the wind that there is; thus in a light wind if there is a full boat's crew in a boat, very little ballast,

perhaps none, will be necessary, and in a fresh breeze about eight or ten barricoes of water will generally be sufficient for an ordinary 30 foot cutter, less than that for smaller boats, and more for launches and pinnaces; but it must of course be remembered that the amount of ballast to be carried must be regulated, not only by the strength of the wind, but also by the amount of sail which you propose to carry.

I have already made some remarks about "trim" so that I presume no one will think of starting for a race, without having previously found out by actual practice the best trim of his boat upon all points of sailing; to neglect this is inexcusable and deserves failure.

With regard to temporary false keels for racing, it is certain that if there are two boats otherwise equal, but that one of them has a false keel, she will certainly go to windward better than the other boat; but it is very easy to overdo it in the matter of keels, and by putting on too large a keel, to make a boat crank and unhandy; and I may here remark upon a very common and popular error, which is, to suppose that a false keel makes a boat stiffer under sail; on the contrary all keels except very heavy metal ones, make a boat cranker; the water acts upon the lee side of the keel, and prevents the boat from going to leeward, but at the same time that it does so, it makes her heel over more, as the keel

is below the centre of gravity of the boat, and the tendency of the water pressure on the lee side of it, is of course to force it to windward: and in a seaway a deep keel is apt to become a source of considerable danger, as it holds the boat and prevents her from giving to the sea. I have been nearly swamped in a centre-board boat myself, and only saved her from filling, by tricing up the centre-board, notwithstanding that it was an iron one of considerable weight; it is difficult to explain this, but a trial or two, in an open centre-board boat, in a seaway will convince the most sceptical.

A "camber" wooden keel, that is, a keel with depth amidships and rounded off to nothing at both ends, is a good sort of keel for racing, and makes a boat handy; but the keel that I have found best and most convenient, is a thin sheet of iron screwed on to the side of the boat's main keel, somewhere near the middle of the boat, it need not be more than one-third the length of the boat, it is very quickly put on or taken off, and should be fitted with nuts and screws; it does not injure the boat in any way, and when taken off, the holes should be filled up with putty; this keel is nothing more nor less than a centre board, and makes a boat very handy and weatherly; about eighteen inches or two feet clear below the main keel is quite deep enough for it; it is so thin that it offers scarcely any "fore and aft" resistance, and so light that it will not sink the boat if she fills.

RULES FOR RACING.

It is scarcely necessary to say that no racing rules can be made to abrogate the ordinary rules of the road, such as that Port tack gives way to Starboard tack, and that boats "going free," give way to boats "close hauled," and that the overtaking boat must not run into the overtaken boat; but there are a few special rules which should always be attended to in racing, and which no one should start for a race without knowing. One of these is that if two boats are rounding a mark together, the outside boat is bound to give the inside boat room, that is to say provided the inside boat has established a "lap" as it is called, before the outside boat puts her helm over for the purpose of rounding the mark; but on the other hand, if the inside boat has not established a lap, or in other words, covered the other boat with any part of her bow or bowsprit, before the latter puts her helm over, then the inside boat has no business to jam her nose in between the outside boat and the mark, and if she does so, she does it at her own risk, and the outside boat is *not* bound to give her room.

If two boats are standing "close hauled" towards a lee shore, shoal, or any other danger, so that the leeward-most boat cannot tack without fouling the other one, then the latter is bound to tack directly the lee boat hails her to do so, but the lee boat must tack at the same time

herself, that is to say she must put her helm down at the same moment that the weather boat does so.

A boat may "luff" as much as she likes to prevent another boat from passing her, but she must not "bear away" to do so.

A buoy, vessel, pile or any other object which is one of the marks in a race, must not be touched by a boat or her sail or anything belonging to her, any boat infringing this rule will be disqualified unless it can be proved that she has been wrongfully forced on to such mark by one of the other boats.

No oars, paddles, bottom boards, bailers, hands or feet, or any thing else may be used in the water to propel a boat in a sailing race

If a boat anchors she must weigh her anchor again and not slip it.

These are some of the principal rules in yacht racing, and they apply equally to boats, and should always be enforced by the Committee of a regatta, and attended to in private matches, as they are rules which experience has taught to be necessary to ensure fair racing.

And remember—An ounce of practice is worth a whole ton of theory.